



**Boral Construction Materials**

**Materials Technical Services**

Unit 4, 3-5 Gibbon Road  
Baulkham Hills NSW 2153  
PO Box 400,  
Winston Hills NSW 2153

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www.boral.com.au

**Test Report**

CLIENT: XYPEX AUSTRALIA  
9/177 Arthur Street, Homebush west, NSW 2140.

FILE No.:256/11

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 44510

**TEST PROCEDURE: Boral Chemical Method 2 – Determination of metal oxides by Lithium Meta Borate Fusion and analysed using ICP**

Laboratory Sample No.: 119645  
Date Sampled: Unknown  
Date Received: 12/08/11  
Sample Description: Ecotec Silica  
Fume - Monthly  
August'11.

Field No.: 1

**TEST RESULTS**

Silicon as SiO<sub>2</sub> (%) 85.6

Sample submitted by the client.

*Nall-S*  
Nanthini Selvadurai  
Analytical Chemist  
09<sup>th</sup> September 2011  
D. Rowley, G. Kao, File



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## TEST REPORT

**CLIENT:** XYPEX AUSTRALIA  
Address: 9/177 Arthur Street Homebush West NSW 2140

**FILE NO:** 256/11

**SOURCE OF SAMPLE:** Unknown

**LAB SAMPLE NO:** 119645

**REQUEST NO:** 44510

**SAMPLE IDENTIFICATION:** Ecotec Silica Fume – Monthly Sample for August. 2011

**IDENTIFICATION OF CEMENT USED:** Boral Cement SL Berrima – ID # 64514

**TEST METHOD:** ASTM C-1240-04 Use of Silica Fume as a Mineral Admixture in Hydraulic-Cement Concrete, Mortar & Grout

### Accelerated Pozzolanic Strength Activity Index With Portland Cement - ASTM C1240-04

**Date Cast:** 1-09-11

**Date Crushed:** 8-09-11 @ 7 Days

<b>Results:</b>	<b>Accelerated Pozzolanic Strength Activity Index:</b>	113% @ 7 Days
	<b>Control Mix Strength:</b>	38.6 MPa
	<b>Test Mix Strength:</b>	43.6 MPa

**Note:**

Test mix used 242 mls of water and 6.0 grams of Water Reducer (Rheobuild 1000 from BASF) to obtain a flow of 106%.

Daniel Rowley, Gary Kao, Mat. File, File

Muans Abdulnebe



Approved Signatory \_\_\_\_\_  
Date 26-09-11 Serial No. 99701

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**TEST REPORT**

**CLIENT: XYPEX AUSTRALIA**  
Address: 9/177 Arthur Street Homebush West NSW 2140

**FILE NO: 256/11**

**REQUEST NO: 44510**

**LAB. SAMPLE NO: 119645**

**SOURCE OF SAMPLE: Unknown**

**SAMPLE IDENTIFICATION: Ecotec Silica Fume –Monthly Sample for August 2011**


**TEST METHOD: AS3583: Methods of test for supplementary cementitious materials for use with Portland Cement**

PROPERTY	DATE TESTED	RESULT	TEST METHOD	AS3582 SPEC.
Moisture content	01-09-11	0.8%	AS3583.2	Max. 3.0%
Loss on ignition	01-09-11	2.3 %	AS3583.3	Max. 6.0%
Relative Density	01-09-11	2.29	AS3583.5	

Sample submitted by the client.

Daniel Rowley, Gary Kao, Mat. File, File



Approved Signatory   
Date 26-09-11 Serial No. 99702

Muans Abdulnebe

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MATERIALS TECHNICAL SERVICES  
BORAL RESOURCES (NSW) PTY LTD  
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PO Box 400, Winston Hills NSW 2153  
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**Test Report**

CLIENT: XYPEX AUSTRALIA  
9/177 Arthur Street, Homebush west, NSW 2140.

FILE No.:256/11

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 44510

**TEST PROCEDURE:**

AS3583.12 – 1991 – Determination of Available Alkali

Laboratory Sample No.: 119645  
Date Sampled: Unknown  
Date Received: 12/08/11  
Sample Description: Ecotec Silica Fume -  
Monthly August'11.

Field No.: 1

**TEST RESULTS**

Sodium as Na<sub>2</sub>O (%) 0.21  
Potassium as K<sub>2</sub>O (%) 0.35  
Available Alkali (%) 0.4

**Available Alkali (%) = Na<sub>2</sub>O (%) + (0.658 x K<sub>2</sub>O %)**

Samples submitted by the Client.

D. Rowley, G. Kao, File



ACCREDITED FOR  
TECHNICAL  
COMPETENCE

Approved Signatory Nanthini Selvadurai  
Date 26-09-11 Serial No. 99703

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Number: 9968



MATERIALS TECHNICAL SERVICES  
BORAL RESOURCES (NSW) PTY LTD  
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Baulkham Hills NSW 2153 Australia  
PO Box 400, Winston Hills NSW 2153  
Telephone 61 2 9624 9900  
Facsimile 61 2 9624 9899

Test Report

CLIENT: XYPEX AUSTRALIA  
9/177 Arthur Street, Homebush west, NSW 2140.

FILE No.:256/11

PROJECT: Testing of Silica Fume Sample.

REQUEST No.: 44510

TEST PROCEDURE: AS3583.13 – Determination of Chloride Ion Content  
AS3583.8 – Determination of Sulfuric Anhydride content

Laboratory Sample No.: 119645  
Date Sampled: Unknown  
Date Received: 12/08/11  
Sample Description: Ecotec Silica Fume -  
Monthly August '11  
Field No.: 1

TEST RESULTS

Chloride as Cl<sup>-</sup> (%) 0.017  
Sulphate as SO<sub>3</sub> (%) 0.9

Samples submitted by the Client.

D. Rowley, G. Kao, File



Approved Signatory Nanthini Selvadurai  
Date 09-09-11 Serial No. 99704

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Number: 9968



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**TEST REPORT**

**CLIENT: XYPEX AUSTRALIA**  
Address: 9/177 Arthur Street Homebush West NSW 2140

**FILE NO: 256/11**

**REQUEST NO: 44510**

**LAB. SAMPLE NO: 119645**

**SOURCE OF SAMPLE: Unknown**

**SAMPLE IDENTIFICATION: Ecotec Silica Fume -Monthly Sample for August .2011**

**Bulk Density - AS3582.3.6.5**

**Result: 632 Kg/m<sup>3</sup>**



Oscar Perez  
09-09-2011

Daniel Rowley, Gary Kao, Mat. File, File



# Particle & Surface Sciences Pty. Limited

PO Box 1926, Gosford, NSW, Australia 2250. Tel: (61) 02 43 237822 Fax: (61) 02 43 237629 Email: info@pss.aus.net

DataMaster V4.03.01

Unit 0

Serial #: 909

Page 1

Sample ID: LSN:119645

Setup ID: None

Converted from:: L:/GEMINI/DATA/L192/4154/119645.MGD

File: L:\..\4154\119645.DMT

Started: 5/10/2011 10:50:05AM

Completed: 5/10/2011 12:13:00PM

Report Time: 5/10/2011 12:34:31PM

Sample Mass: 0.5932 g

Equilibration Interval: 10 s

Sample Density: 1.000 g/cm<sup>3</sup>

Analysis Adsorptive: N2

Analysis Bath Temp.: 77.150 K

Thermal Correction: No

Warm Free Space: -1.0102 cm<sup>3</sup> Measured

Low Pressure Dose: None

Automatic Degas: No

## Summary Report

### Surface Area

Single point surface area at  $p/p^{\circ} = 0.200835307$ : 19.7649 m<sup>2</sup>/g

BET Surface Area: 20.4930 m<sup>2</sup>/g

Langmuir Surface Area: 27.9272 m<sup>2</sup>/g

Sample ID: LSN:119645

Setup ID: None

Converted from: L:/GEMINI/DATA/L192/4154/119645.MGD

File: L:\...4154\119645.DMT

Started: 5/10/2011 10:50:05AM	Analysis Adsorptive: N2
Completed: 5/10/2011 12:13:00PM	Analysis Bath Temp.: 77.150 K
Report Time: 5/10/2011 12:34:31PM	Thermal Correction: No
Sample Mass: 0.5932 g	Warm Free Space: -1.0102 cm <sup>3</sup> Measured
Equilibration Interval: 10 s	Low Pressure Dose: None
Sample Density: 1.000 g/cm <sup>3</sup>	Automatic Degas: No

**BET Surface Area Report**

BET Surface Area: 20.4930 ± 0.0474 m<sup>2</sup>/g  
 Slope: 0.210611 ± 0.000487 g/cm<sup>3</sup> STP  
 Y-Intercept: 0.001813 ± 0.000066 g/cm<sup>3</sup> STP  
 C: 117.168517  
 Qm: 4.7076 cm<sup>3</sup>/g STP  
 Correlation Coefficient: 0.9999813  
 Molecular Cross-Sectional Area: 0.1620 nm<sup>2</sup>

Relative Pressure (p/p <sup>0</sup> )	Quantity Adsorbed (cm <sup>3</sup> /g STP)	1/[Q(p <sup>0</sup> /p - 1)]
0.050195978	4.2600	0.012406
0.069086933	4.5203	0.016418
0.087862238	4.7332	0.020351
0.106688934	4.9231	0.024260
0.125483510	5.0925	0.028176
0.144355199	5.2501	0.032134
0.163149776	5.3993	0.036108
0.182060006	5.5423	0.040161
0.200835307	5.6813	0.044234

Sample ID: LSN:119645  
 Setup ID: None  
 Converted from:: L:/GEMINI/DATA/L192/4154/119645.MGD  
 File: L:\...4154\119645.DMT

Started: 5/10/2011 10:50:05AM	Analysis Adsorptive: N2
Completed: 5/10/2011 12:13:00PM	Analysis Bath Temp.: 77.150 K
Report Time: 5/10/2011 12:34:31PM	Thermal Correction: No
Sample Mass: 0.5932 g	Warm Free Space: -1.0102 cm <sup>3</sup> Measured
Equilibration Interval: 10 s	Low Pressure Dose: None
Sample Density: 1.000 g/cm <sup>3</sup>	Automatic Degas: No

**Langmuir Surface Area Report**

Langmuir Surface Area: 27.9272 ± 0.5526 m<sup>2</sup>/g  
 Slope: 0.155876 ± 0.003085 g/cm<sup>3</sup> STP  
 Y-Intercept: 3.610378 ± 0.323101 mmHg·g/cm<sup>3</sup> STP  
 b: 0.043175 1/mmHg  
 Qm: 6.4153 cm<sup>3</sup>/g STP  
 Correlation Coefficient: 0.998632  
 Molecular Cross-Sectional Area: 0.1620 nm<sup>2</sup>

Pressure (mmHg)	Quantity Adsorbed (cm <sup>3</sup> /g STP)	p/Q (mmHg·g/cm <sup>3</sup> STP)
39.060001	4.2600	9.169
53.759998	4.5203	11.893
68.370003	4.7332	14.445
83.019997	4.9231	16.864
97.644997	5.0925	19.174
112.330002	5.2501	21.396
126.955002	5.3993	23.513
141.669998	5.5423	25.562
156.279999	5.6813	27.508